NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs Telephone: 301/415-8200
Washington, DC 20555-001 E-mail: opa@nrc.gov
Web Site: http://www.nrc.gov/OPA

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A PERSPECTIVE ON THE FUTURE

Remarks Of
Dr. Richard A. Meserve
Chairman
U.S. Nuclear Regulatory Commission
At The
Thirteenth Annual
Regulatory Information Conference

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Introduction.

Good afternoon. I am pleased to join you today at the NRC's annual Regulatory Information Conference. This conference is an extremely valuable forum for the exchange of views between NRC and its stakeholders, and I thank Sam Collins and the staff of NRR for organizing and hosting this event. I also appreciate the investment of time and effort by the participants. It is through mutual effort that this conference is and will continue to be meaningful.

I want to share some thoughts with you this afternoon on the NRC's regulatory activities - where we are now, and where we are headed in the future. But before commenting on these matters, I want to take a moment to reflect upon the remarkable time in which we find ourselves.

The Energy Context.

As all of you are aware, we are living in a period of changing attitudes toward nuclear power. Only a few years ago, pundits claimed that the deregulation of the electricity business would result in the premature shutdown of many nuclear plants and the eventual end of reliance on nuclear power in the U.S. In striking contrast to these forecasts, we in fact have seen strong interest in license renewal across the fleet. These applications, if successful, will mean that nuclear energy will contribute to our Nation's energy supply well into

this century. There also is strong competition among a variety of bidders to acquire ownership of existing plants, in recognition of their economical, stable, reliable, and environmentally benign performance. We have even seen the first stirring of interest in the possibility of new construction in the U.S. -- a thought that would have been unthinkable even a year ago.

The changing attitudes have been reinforced by the problems with electrical supply in California. The nuclear plants in the West are appropriately seen as the anchors of the grid. I recently received a copy of a newspaper story in which a representative of an anti-nuclear group, the San Luis Obispo Mothers for Peace, is quoted as saying that "Right now, Diablo Canyon is a necessary part of the energy mix to keep the lights on."[1] Who would have imagined such an endorsement even six months ago.

Although deregulation may be slowed in some states in the aftermath of the California situation, the supply problems in the West have prompted the start of the first careful scrutiny of national energy policy in the past 20 years. The Administration has formed a task group chaired by Vice-President Cheney. There is strong Congressional interest in energy legislation, as reflected in several bills that are already pending. The early discussions suggest that nuclear power will be a strong component in the mix of technologies that are shaped into a national strategy.

The NRC does not have a promotional role for nuclear power in this debate. Indeed, the NRC's fundamental mission and responsibilities remain unaltered. The NRC is obligated to regulate the Nation's civilian use of nuclear materials to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment. Because the viability of the nuclear option is absolutely dependent on the maintenance of safe operations, the NRC's -- and the industry's -- highest priority must be the protection of public health and safety. If we fail in ensuring safety, the emerging optimism about nuclear energy will quickly disappear.

Although the NRC's focus must remain on safety, this does not mean that the NRC has no role in the resurgent interest in nuclear power. The Nation's regulatory system should not establish <u>inappropriate</u> impediments to the application of nuclear technology. The NRC's performance goals reflect this philosophy: they include the improvement in the efficiency and effectiveness of our regulatory process and the reduction of unnecessary regulatory burden. Many of our initiatives over the past several years have sought to maintain or enhance safety while simultaneously simplifying and improving our regulatory system. We also believe that we have an important role in establishing and maintaining public confidence -- another of our performance goals. In fact, we believe that the NRC fosters a climate in which the nuclear option can be fairly evaluated by both being a strong regulator and by being seen by the public as fulfilling that role.

There is another factor that has affected the emerging attitudes toward nuclear power that also should be mentioned. Looking back over the past decade, we see remarkable improvements in performance. The average capacity factor for U.S. light water reactors was over 90 percent for the first nine months of 2000, up from approximately 65 percent just 10 years ago. Indicators of safety performance show that during the same period the overall safety performance of the industry has significantly improved. For example, the average number of automatic scrams has declined by approximately a factor of 3 in the past decade.

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[1] David Sneed, *Diablo plant shines in energy crisis*, San Luis Obispo Tribune, Feb. 4, 2001, at 1.

The improved performance of nuclear plants has resulted in significant increases in electrical output. According to the Energy Information Administration, nuclear electrical output has grown approximately 25 percent in the last decade. As a result, electricity production from U.S. nuclear plants is second only to that produced from coal-burning plants. The role of nuclear over the coming decades is dependent on continuing operation of our existing fleet and, if society so decides, on new construction. In turning to the NRC-related activities, let me therefore first discuss our initiatives in these areas.

License Renewal.

The Atomic Energy Act limits the license term for most plants, but provides for license renewal. The limitation on the initial operating license to 40 years was not established on the basis of technical limitations, but rather was driven by antitrust and financial considerations. Accordingly, the Commission established regulations governing the renewal of operating licenses in 10 CFR Part 54. The first license renewal applications, for Calvert Cliffs and Oconee, were received in 1998, and the staff developed an ambitious 30-month schedule to complete the safety and environmental evaluation of each application and provide its recommendations to the Commission. I am sure that all of you know that we met our schedules for both plants and approved 20-year extensions last year. We currently have 3 applications under review, including the first boiling water reactor, Southern Company's Hatch plant. Five additional applications are expected during the current fiscal year. Roughly 40 percent of U.S. plants have formally expressed their intention to seek license renewal, and ultimately more than twice that number may apply.

The Commission recognizes that the simultaneous review of many renewal applications presents a considerable challenge in managing resources. But I am confident that the NRC is up to the task. We must - and shall - fulfill our responsibilities to perform high-quality, technically sound reviews while maintaining the efficient, effective process that has been established in these first reviews. These reviews will be facilitated by the staff's development of the Generic Aging Lessons Learned Report, which was also issued for public comment last year.

Construction of Nuclear Power Plants.

Increased demands for electricity in the future will need to be addressed by construction of new generating capacity of some type and, as I have mentioned, serious industry interest in new reactor construction in the U.S. has recently emerged. The Commission, working with current licensees and other stakeholders, has put in place a more efficient licensing procedure to avoid some of the delays incident to the processes under which the current fleet of plants was licensed. In the last few years, the NRC has certified three advanced reactor designs under the design certification rule, 10 CFR Part 52: the advanced boiling water reactor (ABWR), and the System 80+ and the AP600 light water reactors. In addition to these certified designs, there are new nuclear power plant technologies, such as the Pebble Bed Modular Reactor, which some believe can provide enhanced safety, improved efficiency, lower costs, as well as other benefits.

To ensure that the NRC is prepared to evaluate any applications to introduce these advanced nuclear reactors, the Commission is assessing its policies to identify where changes may be necessary. Particular emphasis is being placed on the early identification of regulatory issues. Moreover, the staff is assessing its technical, licensing, and inspection capabilities in order to identify enhancements that would be necessary to ensure that the agency can effectively carry out responsibilities.

In order to confirm the safety of new concepts, the Commission believes that a strong nuclear research program should be maintained. A comprehensive evaluation of the NRC's research activities is underway with assistance from a group of outside experts and from the Advisory Committee on Reactor Safeguards. With the benefit of these insights, it is my intention for the Commission to take steps to strengthen our research program over the coming months.

Implications of a National Energy Policy.

I mentioned the emerging interest in national energy policy a few moments ago. The Commission has identified areas where new legislation would be helpful to eliminate artificial restrictions and to reduce the uncertainty in the licensing process. These changes would maintain safety while increasing flexibility in decision-making. Although those changes would have little or no immediate impact on electrical supply, they would help establish the context for consideration of nuclear power by the private sector without any compromise of public health and safety or protection of the environment.

Legislation will be needed to extend the Price-Anderson Act. The Act, which expires on August 1, 2002, establishes a framework that provides assurance that adequate funds are available in the event of a nuclear accident and sets out the process for consideration of nuclear claims. Without the framework provided by the Act, private-sector participation in nuclear power would be discouraged by the risk of large liabilities.

Several other legislative changes would be helpful. For example, Reorganization Plan No. 3 of 1970 could be revised to provide NRC with the sole responsibility to establish all generally applicable standards related to Atomic Energy Act (AEA) materials, thereby avoiding dual regulation of such matters by other agencies. Along these same lines the Nuclear Waste Policy Act of 1982 could be amended to provide the NRC with the sole authority to establish standards for high-level radioactive waste disposal. These changes would serve to provide full protection of public health and safety, while avoiding needless and duplicative regulatory burden.

NRC antitrust reviews could also be eliminated. As a result of the growth of Federal antitrust law since the passage of the Atomic Energy Act, the NRC's antitrust reviews are redundant of the reviews of other agencies. The requirement for Commission review of such matters, which are distant from the Commission's central expertise, should be eliminated.

Congress should also eliminate the ban on foreign ownership of U.S. nuclear plants; since many of the entities that are involved in electrical generation have foreign participants, the ban on foreign ownership is increasingly anachronistic. The Commission has authority to deny a license that would be inimical to the common defense and security, and thus an outright ban on all foreign ownership is unnecessary.

With the strong Congressional interest in examining energy policy, I am optimistic that there will be a legislative vehicle for making these changes and thereby for updating the Atomic Energy Act.

Risk-Informing NRC Regulations.

I now want to turn to the NRC's initiative to risk-inform regulatory activities. Improved probabilistic risk assessment techniques combined with over four decades of accumulated experience with operating

nuclear power reactors have caused us to recognize that some regulations may not serve their intended safety purpose. This situation arises because, when many NRC regulations were originally formulated, the NRC did not yet have much practical experience with commercial reactors. As a result, the Commission generally proceeded very cautiously, relying on conservative engineering judgment and defense in depth. We have learned much in the intervening years and now recognize that some of our regulatory requirements may not be necessary to provide adequate protection of public health and safety. Where that is the case, we should revise or eliminate the requirements. On the other hand, we must be prepared to strengthen our regulatory system where risk considerations reveal the need.

As part of its effort to apply the insights arising from PRAs, the NRC has undertaken a wide range of activities. The questions posed in moving forward with risk-informed regulation include: whether PRA quality is sufficient to allow application in risk-informed regulation, whether the risk-information used in decision-making will be made publicly available, whether stakeholders can be confident that safety is maintained with this regulatory approach, and how to control implementation of these initiatives.

In addition to the revision of the reactor oversight program, which I will discuss in a moment, we are progressing with the evaluation of the technical bases that underlie the requirements in 10 CFR Part 50 and modifying them, as appropriate, to focus on risk-significant issues. Based upon feedback recently received, progress has not been as rapid or easy as initially expected and, as a result, the expected benefits are being questioned by some. For example, progress in risk-informing the so-called "special treatment" requirements, such as equipment seismic specifications and environmental qualifications, has been slow and there is disagreement as to how to resolve certain issues. Other disagreements have arisen in connection with the revision of the regulations and regulatory guidance governing fire protection. The Commission is aware of the issues and has encouraged the staff to establish a constructive dialogue with all of our stakeholders to work towards mutually acceptable solutions. The NRC is committed to work to resolve the issues associated with risk-informing our regulations on a priority basis and to develop solutions.

Let me urge that all of our stakeholders approach the effort with patience and perseverance. The challenges associated with risk-informing our regulations may be more substantial than any of us initially anticipated. Nonetheless, the gains if we are successful are significant because the effort promises a more rational, more effective, and less burdensome regulatory regime. The task, if completed, holds the promise of a "win" for all our stakeholders. As a result, the NRC is committed to redoubling our efforts to resolve the issues and we hope that all our stakeholders will continue to work with us.

Initial Implementation of the Revised Reactor Oversight Process.

One particularly important aspect of our effort to risk-inform our regulatory programs is the revised reactor oversight process (ROP). We are close to completion of the first year of initial industry-wide implementation and, overall, we find that the new process has been a remarkable success. Initial implementation was a carefully chosen phrase, which was intended to capture the fact that adjustments and mid-course corrections would be necessary and appropriate. I have been amazed at how smoothly the first year of implementation has gone, which is credit to both our licensees and the NRC staff.

The process has provided a more objective and understandable evaluation of plant performance, with a focus on operational aspects that are of the highest safety significance. The concept and application of the significance determination process as an evaluation tool has been instrumental in focusing attention on the most

important aspects of inspection findings. And the new process has also improved public access to assessment information and has reduced unnecessary regulatory burden.

The Commission recognized when it approved initial implementation that there would be areas that required further refinement. Some performance indicators have proven to be problematic. Last year at this meeting, concerns were raised about the manual scram performance indicator (PI). Some perceived that this Performance Indicator might send the wrong message to plant personnel, providing incentives for an operator to make decisions with adverse safety consequences. As a result, a new performance indicator to replace the manual scram performance indicator has been developed and is undergoing pilot testing. There have also been some problems with the unplanned power change performance indicator and the staff is developing a revised performance indicator that will be piloted in the near future. The staff is also working to resolve other issues that have emerged concerning the equipment unavailability performance indicator, the evaluation of cross-cutting issues, and certain of the significance determination processes.

The NRC is now evaluating the oversight program and is seeking feedback from all stakeholders. A lessons-learned workshop will be conducted at the end of March to review the experience of the first year. The Initial Implementation Evaluation Panel comprised of numerous internal and external stakeholders has already conducted several meetings and has more planned in order to provide another means of stakeholder feedback. In addition, the Advisory Committee on Reactor Safeguards will meet with the staff to review ongoing refinements of the significance determination process and the performance indicators. Although we view the revised oversight process as a success, we recognize that improvements can be made. We seek to engage all of our stakeholders in the evaluation effort, and we welcome your comments.

Physical Security.

Let me turn now to an area in which the Commission's effort is only beginning: our physical security requirements. It is apparent that a fundamental reanalysis of NRC policy in this area is required and that many legal and policy issues will have to be addressed.

I am particularly mindful that our policy on security matters has not been transparent and that there may have been inconsistencies in implementation. For example, although the design-basis threat defined in our regulations (10 CFR Part 73.1) has been fairly stable, in the past the adversary characteristics that define the details were revealed to licensees only in the context of an Operational Safeguards Response Evaluation (OSRE) and have varied from time to time and from site to site. In short, until recently, we did not have a disciplined process to define the fundamental obligations of our licensees and, as a result, we did not clearly and consistently communicate our expectations. We recognize the need to develop improvements and the staff is diligently working with stakeholders to correct these issues.

In the interim, the staff has shared a document that defines the adversary characteristics for the conduct of OSREs with licensees, and has developed a more disciplined process for the conduct of OSREs. As a result of these recent actions, the existing program is more predictable than that of the past and the OSREs conducted over the past 5 months have provided more objective assessments of licensees' physical protection capabilities. These initial steps to resolve physical protection issues have help to set us on the right path, but a significant amount of work remains. Many difficult policy issues face the agency, including clarifying the performance objectives of the safeguards program.

At the same time, the staff continues to work diligently with its stakeholders to enable the agency's endorsement of an acceptable Safeguards Performance Assessment (SPA) Program which has been proposed by the industry. The SPA program will be centered on the fundamental aspects of force-on-force exercises that were derived from the experience obtained through the OSRE program.

The Commission is currently reviewing that staff's proposal for the systematic evaluation of the design basis threat and the adversary characteristics against which our licensees are expected to defend. For the longer term, the Commission awaits the staff's proposal for rulemaking based upon a comprehensive review of 10 CFR 73.55, including exercise requirements and associated security regulations. In developing the rule, the Commission directed the staff to pay particular attention to the use of risk insights to develop target sets and to the integration of security inspections and performance indicators into the new oversight process. The performance-based rule, when implemented, should provide flexibility and, most importantly, should focus licensee security resources on the protection of a facility's risk-significant assets while not unnecessarily burdening operational safety.

I stress that all of these efforts must be accomplished in a manner which provides protection from an attack on a facility which the NRC regulates. I commend the staff for their efforts to bring openness and order to our practices relating to safeguards and security over the past six months and I pledge that the Commission will continue these efforts.

Progress on High Level Waste Storage / Disposal.

In the past several years, NRC has responded to numerous requests to approve cask designs for onsite dry storage of spent fuel. These actions have provided an interim approach pending implementation of a program for the long-term disposition of spent fuel. We anticipate that the current lack of a final disposal site will result in a large increase in on-site dry storage capacity during this decade.

There currently are two potential alternatives to on-site storage – centralized interim storage, and disposal in a geologic repository. Delays have been encountered with both alternatives.

Staff is currently reviewing an application for an Independent Spent Fuel Storage Installation on the reservation of the Skull Valley Band of Goshute Indians in Utah. The applicant for the license recently notified the NRC staff of new information that could affect the staff's schedule for the completion of the Environmental Impact Statement (EIS). Specifically, the applicant informed the staff of the need to amend its earlier submissions concerning seismic analyses and to undertake further analysis of aircraft crash hazards. This new information will be included in a submission from the applicant later this month. After the new information is reviewed, the NRC staff, in consultation with the cooperating Federal agencies, will determine its impact on the schedule for completion and release of the final EIS.

Certain matters also need to be resolved in order to make progress on the proposed deep geologic repository at Yucca Mountain. The Energy Policy Act of 1992 requires the EPA to promulgate general standards to govern the site, while the NRC has the obligation to implement those standards through our licensing and regulatory process. The NRC has concerns about certain aspects of EPA's past approach. These include issues concerning: (1) the need for a separate groundwater protection standard; (2) EPA's use of outdated dosimetry in defining maximum contaminant levels for groundwater protection; (3) EPA's use of a 15 mrem/year dose limit; and (4) EPA's inclusion of implementation details that should remain within NRC's

discretion. I am hopeful that at least some of these concerns will be resolved. I am encouraged by the comments of Governor Whitman, the new EPA Administrator, at her confirmation hearing to the effect that she intends to work with the NRC in developing a standard. To that end, I am meeting with Governor Whitman early next week to discuss the Yucca Mountain issue, among other topics. I am cautiously optimistic that a regulatory framework for consideration of a possible repository at Yucca Mountain can be in place within the next several months.

Maintaining Core Competency.

Before I conclude, I want to spend a minute to discuss two overarching issues that affect the long-term success of the NRC. The first is the need to maintain the core competency of the NRC staff.

My close exposure to the NRC staff over the 16 months I have been with the Commission has served to deepen my appreciation of the dedication, thoughtfulness, and technical skill of the NRC staff. But I am worried about the future. In some important offices, nearly 25 percent of the staff are eligible to retire today. In fact, the NRC has 6-times as many staff over the age of 60 as it has staff under 30. And, as with many Federal agencies, it is becoming increasingly difficult for NRC to hire personnel with the knowledge, skills and abilities to conduct the safety reviews, licensing, and oversight actions that are essential to our safety mission. Moreover, the number of individuals with the technical skills critical to the achievement of our safety mission is rapidly declining in our Nation and our educational system is not replacing them.

In response to this important issue, in October of last year I asked the NRC's Executive Director for Operations to become personally involved in addressing this situation. As a result, we are now seeking systematically to identify future staffing needs and to develop strategies to address the gaps. It is apparent, however, that the maintenance of a technically competent staff will require substantial effort for an extended time.

I mention the need here because this is a matter on which the entire nuclear enterprise confronts the same problem: we are all dependent on the same pipeline of personnel from our educational system. I urge that we undertake a common cause to confront a problem that is central to the long-term effectiveness of both the agency and the industry.

The Need for Public Openness.

Let me also note another matter of overarching importance. None of the changes that I have described will serve their intended purpose without public confidence in the NRC and in the industry. Let me conclude, therefore, by talking for a moment on the subject of openness.

The regulation of the civilian use of nuclear power is obviously a highly technical activity, involving scientific analysis and engineering judgment that most members of the public at large cannot be expected to follow at the detailed technical level. It might be easy to conclude that because most of the public may not understand, for example, conditional core damage probability, special treatment requirements, or emergency core cooling systems, it is pointless to involve the public in the everyday intricacies of nuclear regulation. I think that such a conclusion is wrong.

There are segments of our society that are very concerned about the risks -- real and imagined -- that the technology presents to the public health and safety and the environment. Others worry about the need to safeguard nuclear materials so that untoward uses are avoided. And others are worried about the risk attendant to nuclear waste. Many of those holding strong views on such matters may not be technically knowledgeable and cannot engage the agency at the level of technical sophistication with which our staff is comfortable. But somehow these concerns must be confronted.

Although our regulatory decisions are based on detailed technical evaluations, at core they usually implicate embedded social judgments about the acceptability of risk and the balance of costs and benefits. These are social judgments on which the public has a stake and on which the affected public is entitled to have its concerns addressed. There thus is a substantive imperative to involve the public in our decision-making. Indeed, the public may on occasion bring to light issues that deserve careful attention and that otherwise would not have been examined. If the NRC is to be successful, the concerns of the public must be openly acknowledged and directly confronted.

Equally important, there is a procedural imperative to make decisions through processes that are accessible to the public. No matter how careful a job we do, if our work is performed behind a veil of secrecy, the public will not have confidence that the result is fair, objective, honest, or in the public interest. There will always be the corrosive suspicion that decisions made outside the sight of the public serve to protect those favored by the decisions, to conceal dangers, or to cloak imprudent acts.

As a result of these considerations, the Commission has strived to maintain open communication with all its stakeholders and seeks to ensure the full and fair consideration of issues that are brought to our attention, whatever the source. Occasionally this means that our decision processes are slow. But, we believe that public confidence in any increased reliance on nuclear power will not be achieved unless the NRC engages the concerned public and thereby both acts to ensure safety and is seen to act responsibly for this purpose.

Conclusion.

Let me now close where I began. We are living in a period of remarkable change in which there are harbingers of renewed national interest in nuclear power. The new circumstances have required great agility by our licensees – an agility that is reflected in the restructuring that many of you have endured and the many initiatives that the industry has underway. I recognize that the circumstances require a similar agility by the NRC – a willingness to think of new ways to accomplish our abiding obligation to assure protection of the public health and safety. I hope that the activities I have described for you today provide assurance that the NRC is up to the task.

Thank you for joining us at this conference. I have appreciated the opportunity to speak with you and would be pleased to answer questions.